

TSUBAKI Heavy Duty Drive Chains & Sprockets



Philosophy

One hundred years of fundamental technology, and the endless pursuit of new value.

Tsubakimoto Chain has worked tirelessly on improving chain performance since our founding in 1917. We were the first Japanese factory to be accredited by Japan Industrial Standards (JIS) for roller chain in 1953. We dubbed that roller chain our first generation chain, and every decade since we have made major leaps in performance up to the 2006 launch of our G7 Series, the world's highest quality roller chain. To celebrate our 100th anniversary, we will be launching our next generation G8 Series, the next evolution of our chain line.

History of RS Roller Chain

- 1917 • Founding
- 1953 • 612 Series JIS accredited
- 1964 • NA Series 2x kW ratings
- 1969 • 53 Series 15% higher tensile strength, global quality
- 1976 • 60 Series 7% higher tensile strength, 25% higher kW ratings, world's top quality
- 1985 • 70 Series 2x wear life, less initial elongation
- 1995 • 80 Series M-type connecting link provides 25% higher kW ratings, 30% increased wear life
- 2006 • G7 Series 33% increased kW ratings, 2x wear life
- 2009 • G7-EX Series Expanded G7 size range
- 2016 • **G8 Series Centennial model**

As a manufacturing company, Tsubakimoto Chain continues to develop products that adapt to global needs with a century of chain manufacturing know-how and contribute to energy savings, labor savings, and better efficiency around the world.

Leonardo da Vinci, founder of the roller chain (1452–1519)

Leonardo da Vinci, the genius of the Renaissance, devised the prototype of a roller chain that today is widely used as a drive chain. His foresight and advanced ideas are revealed in his notebooks, which contain sketches of an object that looks remarkably like a modern chain. The photo shows a portrait of da Vinci, made entirely out of link plates, on display in the main lobby of Tsubakimoto Chain's Kyotanabe Plant.

The Start of a New Era

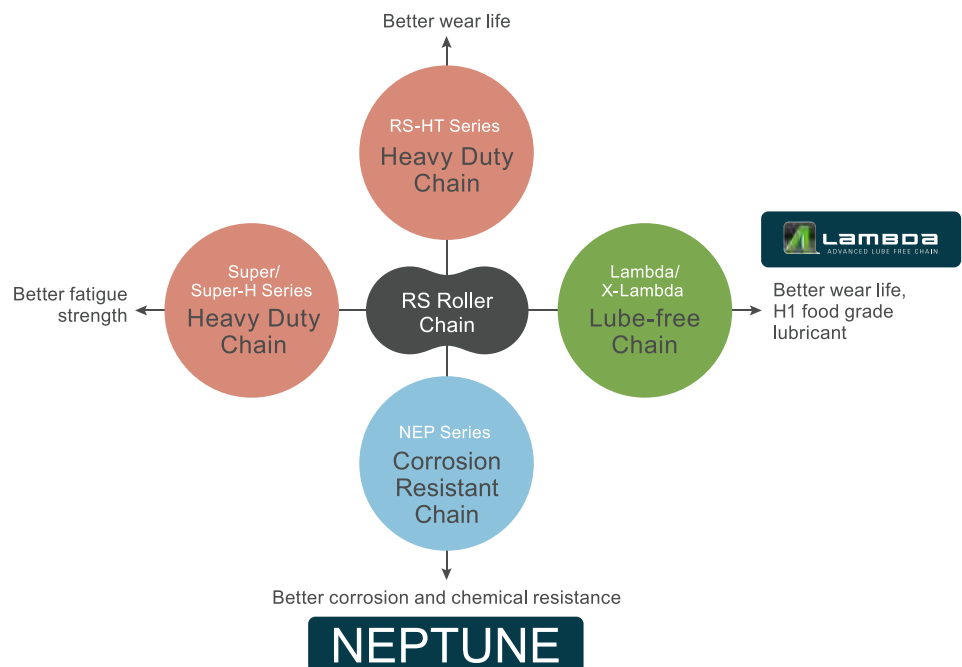


100th Anniversary Model
TSUBAKI G8 SERIES



The rebirth of the drive chain,
with improved quality and performance.

PRODUCT MAP

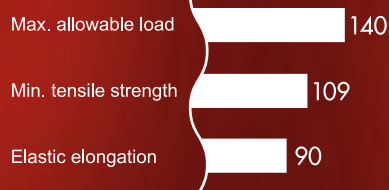


The Ultimate in Strength



Super Chain

5–10% higher maximum allowable load than the previous series!



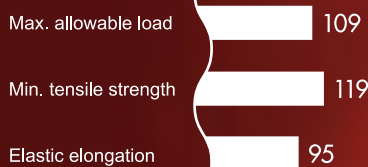
Note: With RS Roller Chain as benchmark (100).

■ Available sizes: RS80–RS240, up to sextuple strand

RS-HT Chain

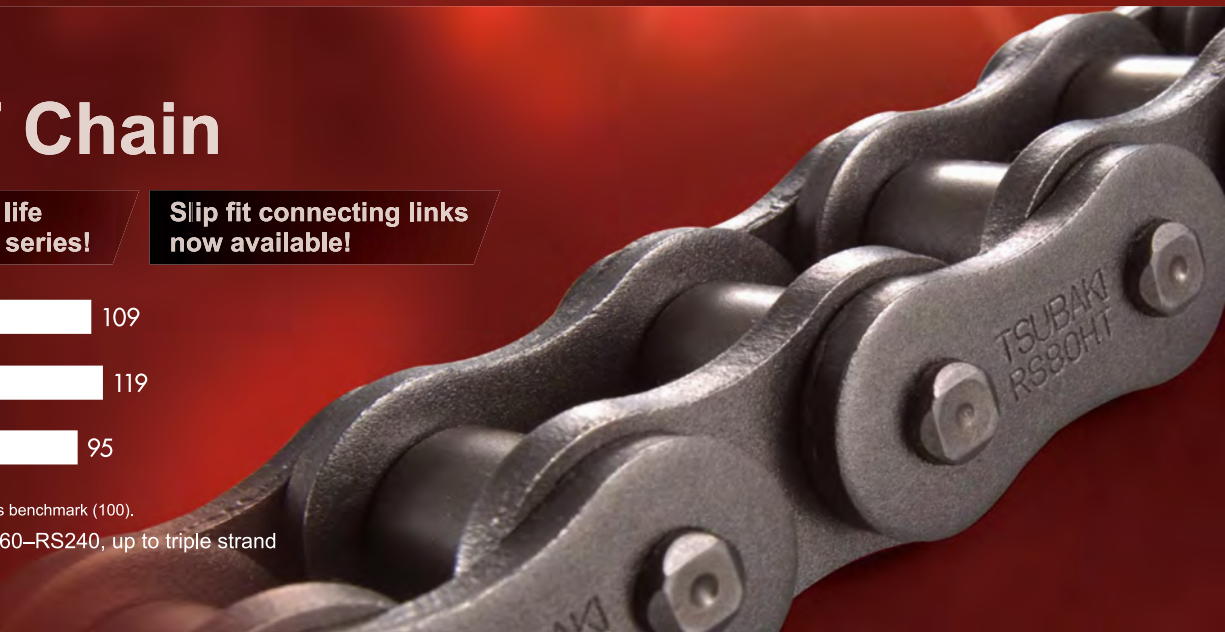
Twice the wear life of the previous series!

Slip fit connecting links now available!



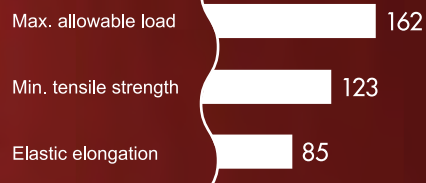
Note: With RS Roller Chain as benchmark (100).

■ Available sizes: RS60–RS240, up to triple strand



Super-H Chain

20% higher max. allowable load than the previous series!



Note: With RS Roller Chain as benchmark (100).

■ Available sizes: RS80–RS240, up to triple strand

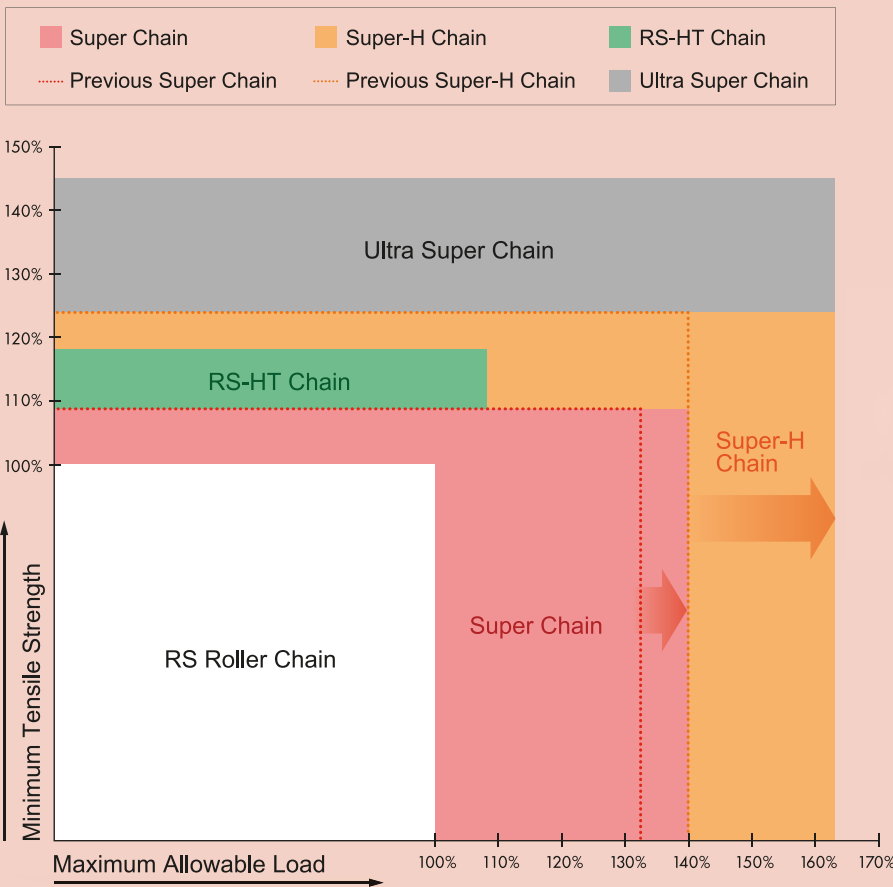


The pursuit of higher performance has helped us create a stronger, longer lasting chain. Choose the model that best suits your needs.

Heavy Duty Drive Chain has a higher maximum allowable load and higher minimum tensile strength than standard RS Roller Chain.

● Comparison of min. tensile strengths and max. allowable loads

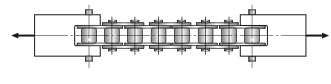
Note: With RS Roller Chain min. tensile strength and max. allowable load as benchmark (100).



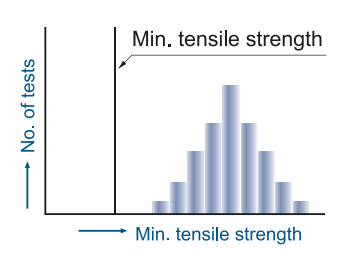
Minimum Tensile Strength

Five or more links of a roller chain are attached to jigs on either side (as shown in the image below) and then pulled until breakage. This test is conducted numerous times, and the minimum value statistically derived is the minimum tensile strength. Any roller chain, attached to jigs on either side and then pulled until breakage, that breaks at a load lower than the minimum tensile strength is considered non-conforming.

Tensile strength test



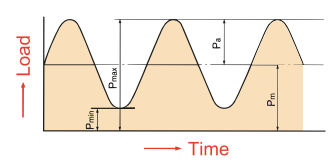
Relationship between test results and min. tensile strength



Max. Allowable Load & Fatigue Strength

A roller chain's maximum allowable load is the lower limit of its fatigue strength (except for stainless steel chains). A roller chain will not suffer fatigue breakage at a load lower than this value, even if the load is repeatedly applied.

Concept of Fatigue Load



Chain Numbering Example

Super Chain

[Base chain]
RS80 - SUP - 1 - M
 Super Chain | F: Press fit connecting link | M: Slip fit connecting link

[With connecting link]
RS80 - SUP - 1 - FJL
 F: Press fit connecting link | M: Slip fit connecting link

RS-HT Chain

[Base chain]
RS80 - HT - 1 - M
 RS-HT Chain | Blank: Press fit connecting link | M: Slip fit connecting link

[With connecting link]
RS80 - HT - 1 - JL
 JL: Press fit connecting link | MJL: Slip fit connecting link

Super-H Chain

[Base chain]
RS80 - SUP - H - 1
 Super-H Chain

[With connecting link]
RS80 - SUP - H - 1 - JL
 Press fit connecting link



Heavy Duty Chains provide the following benefits.



Super-H Chain

For example...

RS80-SUP-H-1 Super-H Chain has the same maximum allowable load as RS80-2-RP RS Roller Chain. So, you can replace double strand RS Roller Chain with single strand Super-H Chain, saving you space.

Super-H Chain



RS80-SUP-H-1

Max. Allowable Load **25.0kN**

Double strand RS Roller Chain

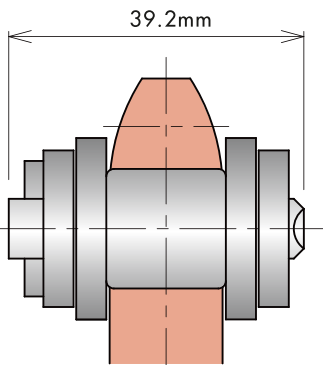


RS80-2-RP

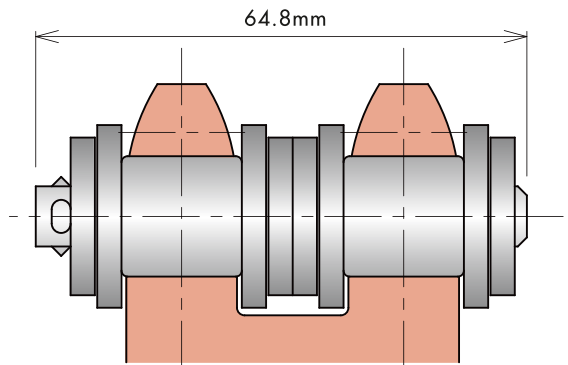
Max. Allowable Load **25.0kN**

A smaller chain means a smaller sprocket.

RS Sprocket (for single strand chains)



RS Sprocket (for double strand chains)



A small chain and sprocket means more compact parts for your equipment!

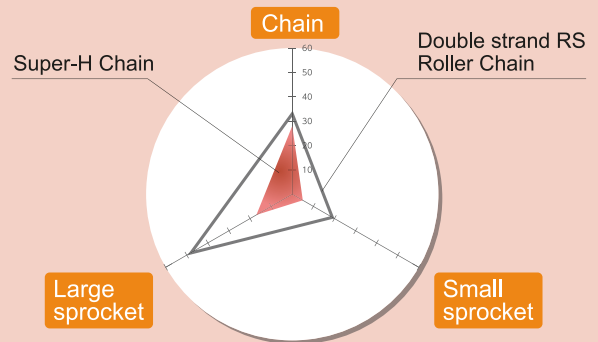
Motors, frames, etc.

You can reduce costs by using smaller chains and sprockets.

Cost Comparison

Note: With total costs of double strand RS Roller Chain as benchmark (100).

	Super-H Chain	Double Strand RS Roller Chain
Chain	28	33
Small sprocket	5	19
Large sprocket	17	48
Total	50	100



Selection Conditions

Chain size: RS80 Center distance between shafts: 800mm Small sprocket: 18T Large sprocket: 36T

Reduce costs 50% with the chain and sprocket

Notes from the Developer



I extensively reviewed all the past specifications in making the G8 Series Heavy Duty Chain. Especially, our main goal with the Super-H Chain was finding a way to somehow improve fatigue strength without changing the chain's basic dimensions. I reviewed how each component was formed, but one key point was adding Tsubaki's original, patented ring coining* to the inner link plates. This creates plastic deformation around the link plate holes, which maintains the precision of the plate holes and in turn influences the chain's quality and performance. In changing the formation methods we also introduced new equipment that could provide a product with better performance and reliability. Check out Tsubaki's new G8 Series Heavy Duty Drive Chain to see how it can help make your equipment more compact and reduce initial costs.



Ring coining

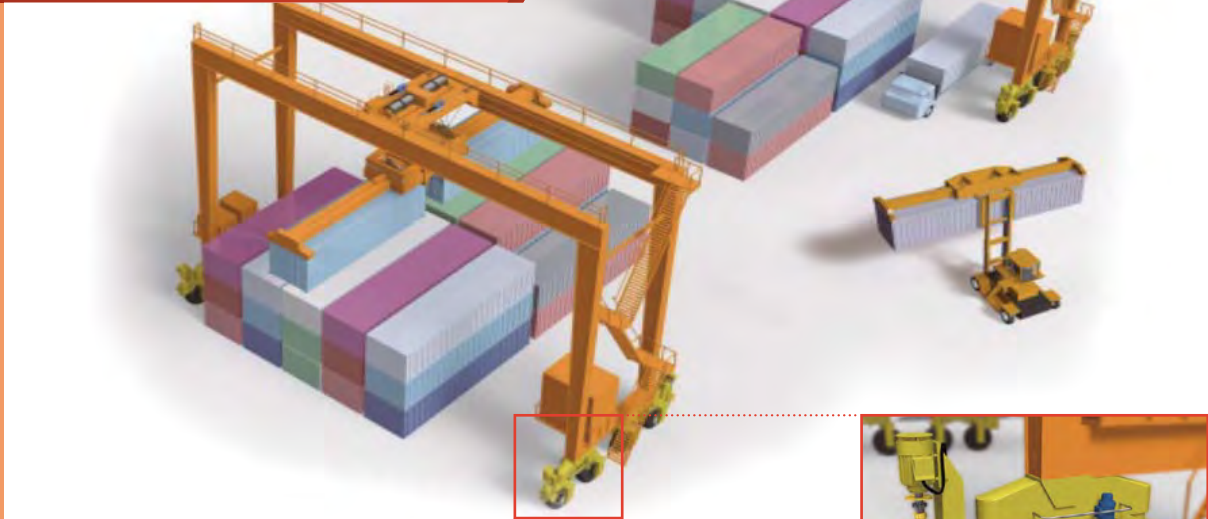
*Ring coining creates an area of plastic deformation around the link plate hole, thereby creating residual stress.

Item \ Chain	Super Chain	RS-HT Chain	Super-H Chain
Features	<ul style="list-style-type: none"> ● High kW ratings ● High shock absorption properties ● Users can go one size down from RS Roller Chain 	<ul style="list-style-type: none"> ● High kW ratings ● High tensile strength ● High shock absorption properties 	<ul style="list-style-type: none"> ● High fatigue strength ● High tensile strength ● High shock absorption properties ● Same max. allowable load as double strand RS Roller Chain
Offset links	<ul style="list-style-type: none"> ● Can use 4POL with single strand chains only. 	<ul style="list-style-type: none"> ● No offset links available. Use an even number of links. 	
Sprockets	<ul style="list-style-type: none"> ● Can use RS Roller Chain sprockets in single and multi strand configurations. 	<ul style="list-style-type: none"> ● Can use RS Roller Chain sprockets in single strand configurations. ● Cannot use RS Roller Chain sprockets with multi strand configurations for RS-HT and Super-H chains. 	
	<ul style="list-style-type: none"> ● Quench harden the small sprocket teeth. ● Use a carbon steel sprocket with a rating of S35C or higher. ● Tsubaki provides Tough Tooth sprockets ideal for use with Heavy Duty Chain. See pages 17–18 of this catalog for more information. 		

Applications

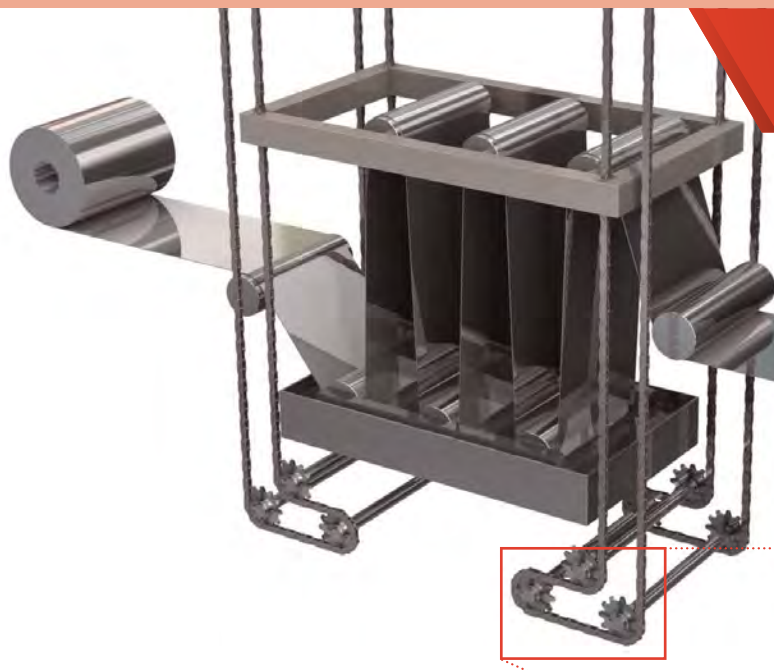
Transfer Cranes

Rubber tire drive



Chain used → Super Chain

Reason → High kW ratings



Looper

Stage lifter

Chain used → Super-H Chain

Reason → High minimum tensile strength



Wobbler Feeder

Roller drive



- Chain used → Super Chain
- Reason → High kW ratings
High shock load resistance

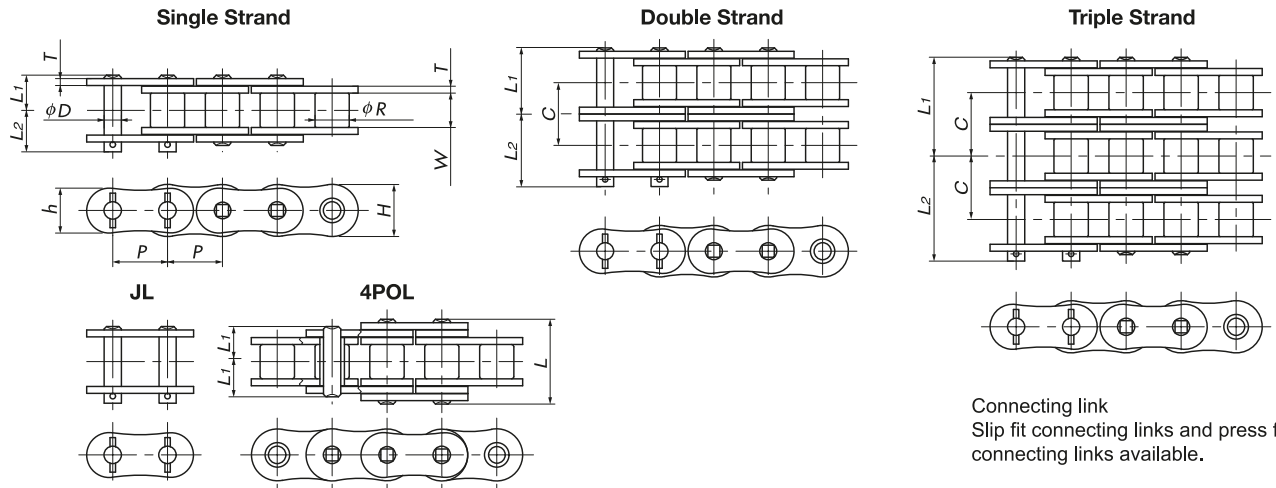
Cultivator

Rotary drive



- Chain used → Super-H Chain
- Reason → High kW ratings
Space saving

Super Chain



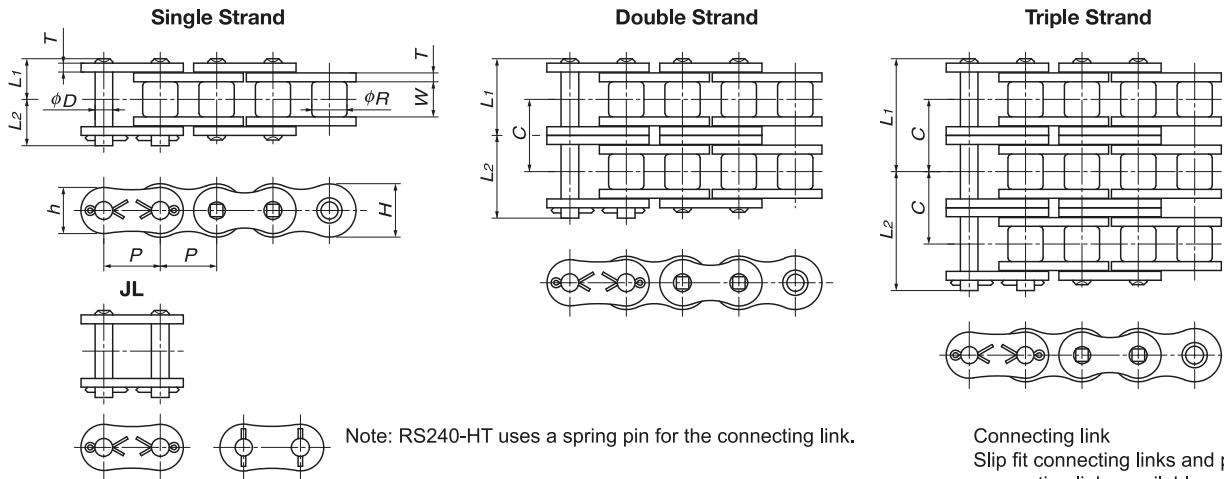
Connecting link
Slip fit connecting links and press fit connecting links available.

TSUBAKI Chain Number	Pitch P	Roller Diameter R	Inner Width of Inner Link W	Plates			Pin Diameter D	4-Pitch Offset Link Pin Length L
				Thickness T	Height H	Height h		
RS80-SUP-1 RS80-SUP-2 RS80-SUP-3	25.40	15.88	15.88	3.2	24.1	20.8	7.94	39.3
RS100-SUP-1 RS100-SUP-2 RS100-SUP-3	31.75	19.05	19.05	4.0	30.1	26.0	9.54	48.0
RS120-SUP-1 RS120-SUP-2 RS120-SUP-3	38.10	22.23	25.40	4.8	36.2	31.2	11.11	59.9
RS140-SUP-1 RS140-SUP-2 RS140-SUP-3	44.45	25.40	25.40	5.6	42.2	36.4	12.71	65.7
RS160-SUP-1 RS160-SUP-2 RS160-SUP-3	50.80	28.58	31.75	6.4	48.2	41.6	14.29	77.2
RS180-SUP-1 RS180-SUP-2 RS180-SUP-3	57.15	35.71	35.72	7.15	54.2	46.8	17.46	86.4
RS200-SUP-1 RS200-SUP-2 RS200-SUP-3	63.50	39.68	38.10	8.0	60.3	52.0	19.85	94.9
RS240-SUP-1 RS240-SUP-2 RS240-SUP-3	76.20	47.63	47.63	9.5	72.4	62.4	23.81	116.0

TSUBAKI Chain Number	No. of Strands	Pin Length L_1+L_2	Dimensions L_1	Dimensions L_2	Transverse Pitch C	Minimum Tensile Strength kN{kgf}	Average Tensile Strength kN{kgf}	Maximum Allowable Load kN{kgf}	Approximate Mass kg/m	Links per Unit
RS80-SUP-1	1	35.5	16.25	19.25	29.3	74.2 { 7570 }	85.3 { 8700 }	20.1 { 2050 }	2.81	120
RS80-SUP-2	2	64.8	30.9	33.9		148 { 15140 }	171 { 17400 }	34.2 { 3490 }	5.62	
RS80-SUP-3	3	94.1	45.6	48.5		223 { 22710 }	256 { 26100 }	50.3 { 5130 }	8.40	
RS100-SUP-1	1	42.6	19.75	22.85	35.8	111 { 11300 }	127 { 13000 }	32.4 { 3300 }	4.25	96
RS100-SUP-2	2	78.5	37.7	40.8		222 { 22600 }	255 { 26000 }	55.0 { 5610 }	8.38	
RS100-SUP-3	3	114.4	55.65	58.75		332 { 33900 }	382 { 39000 }	80.9 { 8250 }	12.57	
RS120-SUP-1	1	53.8	24.9	28.9	45.4	162 { 16500 }	186 { 19000 }	42.2 { 4300 }	6.3	80
RS120-SUP-2	2	99.2	47.6	51.6		324 { 33000 }	373 { 38000 }	71.7 { 7310 }	12.44	
RS120-SUP-3	3	144.8	70.4	74.4		485 { 49500 }	559 { 57000 }	105 { 10750 }	18.64	
RS140-SUP-1	1	58.6	26.9	31.7	48.9	213 { 21700 }	245 { 25000 }	56.9 { 5800 }	8.04	68
RS140-SUP-2	2	107.5	51.35	56.15		426 { 43400 }	490 { 50000 }	96.7 { 9860 }	15.92	
RS140-SUP-3	3	156.6	75.85	80.75		638 { 65100 }	735 { 75000 }	142 { 14500 }	23.84	
RS160-SUP-1	1	68.7	31.85	36.85	58.5	273 { 27800 }	314 { 32000 }	73.5 { 7500 }	10.79	60
RS160-SUP-2	2	127.3	61.15	66.15		545 { 55600 }	628 { 64000 }	125 { 12750 }	21.43	
RS160-SUP-3	3	185.9	90.45	95.45		818 { 83400 }	941 { 96000 }	184 { 18750 }	32.10	
RS180-SUP-1	1	78.1	35.65	42.45	65.8	358 { 36500 }	412 { 42000 }	85.7 { 8740 }	14.23	54
RS180-SUP-2	2	144.1	68.75	75.35		716 { 73000 }	824 { 84000 }	146 { 14860 }	28.08	
RS180-SUP-3	3	210.2	101.7	108.5		1070 { 109500 }	1240 { 126000 }	214 { 21850 }	40.56	
RS200-SUP-1	1	83.8	39.0	44.8	71.6	439 { 44800 }	505 { 51500 }	100 { 10200 }	17.63	48
RS200-SUP-2	2	155.5	74.85	80.65		879 { 89600 }	1010 { 103000 }	170 { 17340 }	34.91	
RS200-SUP-3	3	227.2	110.75	116.45		1320 { 134400 }	1520 { 154500 }	250 { 25500 }	52.44	
RS240-SUP-1	1	103.4	47.9	55.5	87.8	639 { 65200 }	735 { 75000 }	139 { 14200 }	25.63	40
RS240-SUP-2	2	191.3	91.9	99.4		1280 { 130400 }	1470 { 150000 }	237 { 24140 }	50.88	
RS240-SUP-3	3	279.0	135.85	143.15		1920 { 195600 }	2210 { 225000 }	348 { 35500 }	76.11	

Note: 1. Pins are riveted.
2. Four-pitch offset links (4POL) available for single strand only.
3. Maximum allowable load when using a four-pitch offset link (4POL) is 90% that of the above values.

RS-HT Chain



Note: RS240-HT uses a spring pin for the connecting link.

Connecting link
Slip fit connecting links and press fit connecting links available.

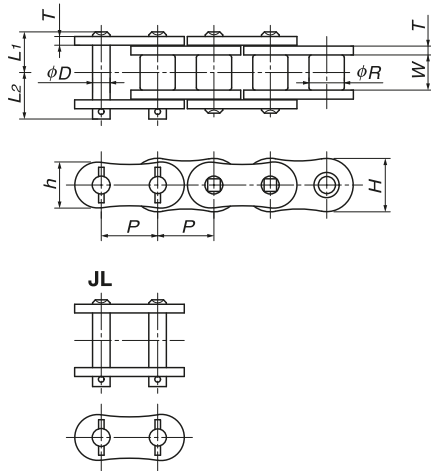
TSUBAKI Chain Number	Pitch P	Roller Diameter R	Inner Width of Inner Link W	Plates			Pin Diameter D
				Thickness T	Height H	Height h	
RS60-HT-1 RS60-HT-2 RS60-HT-3	19.05	11.91	12.70	3.2	18.1	15.6	5.96
RS80-HT-1 RS80-HT-2 RS80-HT-3	25.40	15.88	15.88	4.0	24.1	20.8	7.94
RS100-HT-1 RS100-HT-2 RS100-HT-3	31.75	19.05	19.05	4.8	30.1	26.0	9.54
RS120-HT-1 RS120-HT-2 RS120-HT-3	38.10	22.23	25.40	5.6	36.2	31.2	11.11
RS140-HT-1 RS140-HT-2 RS140-HT-3	44.45	25.40	25.40	6.4	42.2	36.4	12.71
RS160-HT-1 RS160-HT-2 RS160-HT-3	50.80	28.58	31.75	7.15	48.2	41.6	14.29
RS200-HT-1 RS200-HT-2 RS200-HT-3	63.50	39.68	38.10	9.5	60.3	52.0	19.85
RS240-HT-1 RS240-HT-2 RS240-HT-3	76.20	47.63	47.63	12.7	72.4	62.4	23.81

TSUBAKI Chain Number	Number of Strands	Dimensions L_1	Dimensions L_2	Transverse Pitch C	Minimum Tensile Strength $kN\{kgf\}$	Average Tensile Strength $kN\{kgf\}$	Maximum Allowable Load $kN\{kgf\}$	Approximate Mass kg/m	Links per Unit
RS60-HT-1 RS60-HT-2 RS60-HT-3	1 2 3	14.8 27.8 40.85	17.0 29.9 42.95	26.1	48.1 { 4900 } 96.1 { 9800 } 144 { 14700 }	55.9 { 5700 } 112 { 11400 } 168 { 17100 }	9.81 { 1000 } 16.7 { 1700 } 24.5 { 2500 }	1.80 3.59 5.36	160
RS80-HT-1 RS80-HT-2 RS80-HT-3	1 2 3	18.3 34.6 50.95	20.9 37.2 53.55	32.6	81.4 { 8300 } 163 { 16600 } 244 { 24900 }	93.2 { 9500 } 186 { 19000 } 279 { 28500 }	16.2 { 1650 } 27.6 { 2810 } 40.5 { 4130 }	3.11 6.18 9.24	120
RS100-HT-1 RS100-HT-2 RS100-HT-3	1 2 3	21.8 41.4 61.0	24.5 44.1 63.6	39.1	124 { 12600 } 247 { 25200 } 371 { 37800 }	142 { 14500 } 284 { 29000 } 427 { 43500 }	24.5 { 2500 } 41.7 { 4250 } 61.3 { 6250 }	4.58 9.03 13.54	96
RS120-HT-1 RS120-HT-2 RS120-HT-3	1 2 3	26.95 51.4 75.9	30.55 55.0 79.4	48.9	167 { 17000 } 333 { 34000 } 500 { 51000 }	191 { 19500 } 382 { 39000 } 574 { 58500 }	32.4 { 3300 } 55.0 { 5610 } 80.9 { 8250 }	6.53 12.90 19.33	80
RS140-HT-1 RS140-HT-2 RS140-HT-3	1 2 3	28.9 55.0 81.15	33.1 59.5 85.25	52.2	218 { 22200 } 435 { 44400 } 653 { 66600 }	250 { 25500 } 500 { 51000 } 750 { 76500 }	42.7 { 4350 } 72.6 { 7400 } 107 { 10880 }	8.27 16.38 24.54	68
RS160-HT-1 RS160-HT-2 RS160-HT-3	1 2 3	33.95 64.9 95.95	38.45 69.6 100.45	61.9	278 { 28300 } 555 { 56600 } 833 { 84900 }	319 { 32500 } 638 { 65000 } 956 { 97500 }	55.9 { 5700 } 95 { 9690 } 140 { 14250 }	10.97 21.78 32.63	60
RS200-HT-1 RS200-HT-2 RS200-HT-3	1 2 3	42.9 82.05 121.25	48.1 87.3 126.55	78.3	486 { 49600 } 973 { 99200 } 1460 { 148800 }	559 { 57000 } 1120 { 114000 } 1680 { 171000 }	78.5 { 8000 } 133 { 13600 } 196 { 20000 }	18.41 36.47 54.77	48
RS240-HT-1 RS240-HT-2 RS240-HT-3	1 2 3	54.8 105.3 156.05	62.3 112.9 163.55	101.2	768 { 78300 } 1540 { 156600 } 2300 { 234900 }	883 { 90000 } 1770 { 180000 } 2650 { 270000 }	113 { 11500 } 192 { 19550 } 282 { 28750 }	29.13 57.35 85.47	40

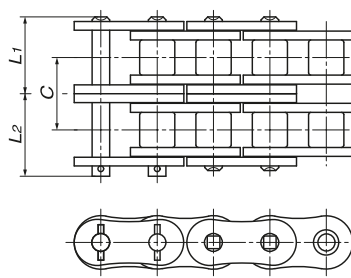
Note: 1. No offset links available.
2. Made-to-order product.

Super-H Chain

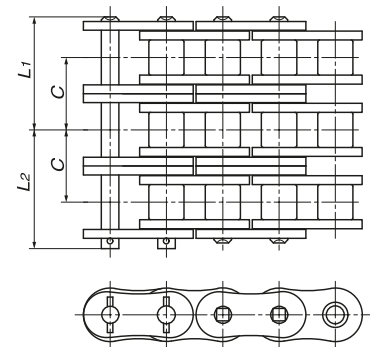
Single Strand



Double Strand



Triple Strand



TSUBAKI Chain Number	No. of Strands	Pitch P	Roller Diameter R	Inner Width of Inner Link W	Plates			Pin			Transverse Pitch C	Minimum Tensile Strength kN{kgf}	Average Tensile Strength kN{kgf}	Maximum Allowable Load kN{kgf}	Approx. Mass kg/m
					Thickness T	Height H	Height h	Diameter D	L1	L2					
RS80-SUP-H-1	1											85.3 { 8700 }	98.1 { 10000 }	25.0 { 2550 }	3.29
RS80-SUP-H-2	2	25.40	15.88	15.88	4.0	24.1	20.8	7.94	34.6	37.2	32.6	171 { 17400 }	196 { 20000 }	42.0 { 4280 }	6.52
RS80-SUP-H-3	3								50.95	53.55		256 { 26100 }	294 { 30000 }	61.8 { 6300 }	9.75
RS100-SUP-H-1	1											127 { 12900 }	145 { 14800 }	39.2 { 4000 }	4.88
RS100-SUP-H-2	2	31.75	19.05	19.05	4.8	30.1	26.0	9.54	41.4	44.1	39.1	253 { 25800 }	290 { 29600 }	66.7 { 6800 }	9.51
RS100-SUP-H-3	3								61.0	63.6		380 { 38700 }	435 { 44400 }	98.1 { 10000 }	14.14
RS120-SUP-H-1	1											171 { 17400 }	196 { 20000 }	53.9 { 5500 }	6.94
RS120-SUP-H-2	2	38.10	22.23	25.40	5.6	36.2	31.2	11.11	51.4	55.0	48.9	341 { 34800 }	392 { 40000 }	91.7 { 9350 }	13.51
RS120-SUP-H-3	3								75.9	79.4		512 { 52200 }	588 { 60000 }	135 { 13750 }	20.09
RS140-SUP-H-1	1											222 { 22600 }	255 { 26000 }	68.4 { 6970 }	8.88
RS140-SUP-H-2	2	44.45	25.40	25.40	6.4	42.2	36.4	12.71	55.0	59.5	52.2	443 { 45200 }	510 { 52000 }	108 { 11050 }	17.38
RS140-SUP-H-3	3								81.15	85.25		665 { 67800 }	765 { 78000 }	159 { 16250 }	25.88
RS160-SUP-H-1	1											281 { 28700 }	324 { 33000 }	90.0 { 9180 }	11.72
RS160-SUP-H-2	2	50.80	28.58	31.75	7.15	48.2	41.6	14.29	64.9	69.6	61.9	563 { 57400 }	647 { 66000 }	145 { 14790 }	22.97
RS160-SUP-H-3	3								95.95	100.45		844 { 86100 }	971 { 99000 }	213 { 21750 }	34.22
RS200-SUP-H-1	1											520 { 53000 }	598 { 61000 }	122 { 12410 }	19.68
RS200-SUP-H-2	2	63.50	39.68	38.10	9.5	60.3	52.0	19.85	82.05	87.3	78.3	1040 { 106000 }	1200 { 122000 }	183 { 18700 }	38.48
RS200-SUP-H-3	3								121.25	126.55		1560 { 159000 }	1790 { 183000 }	270 { 27500 }	57.29
RS240-SUP-H-1	1											802 { 81800 }	922 { 94000 }	168 { 17170 }	30.47
RS240-SUP-H-2	2	76.20	47.63	47.63	12.7	72.4	62.4	23.81	105.3	112.9	101.2	1600 { 163600 }	1840 { 188000 }	257 { 26180 }	59.77
RS240-SUP-H-3	3								156.05	163.55		2410 { 245400 }	2770 { 282000 }	378 { 38500 }	89.09

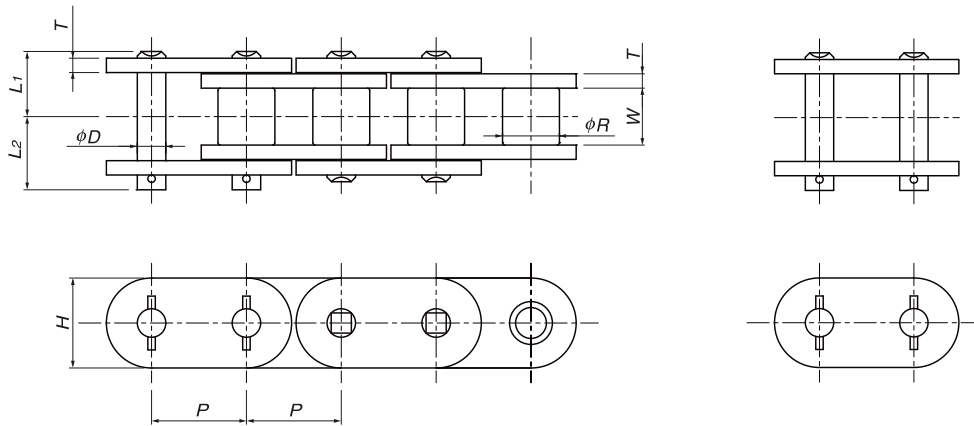
Note: Made-to-order product.

TSUBAKI Chain Number	RS80-SUP-H	RS100-SUP-H	RS120-SUP-H	RS140-SUP-H	RS160-SUP-H	RS200-SUP-H	RS240-SUP-H
Links per Unit	120	96	80	68	60	48	40

Notes for use

- Select chains and sprockets as per the Allowable Load Selection Method.
- Offset links are not available due to the super heavy-duty nature of transmission. Use an even number of links.
- Use drip lubrication, oil bath or splash lubrication, or forced pump lubrication.
- RS Roller Chain sprockets can only be used with single strand chains. Cast iron sprockets cannot be used. Use sprockets made of S35C or higher carbon steel. Quench harden the teeth on sprockets with small numbers of teeth. Check key strength, etc.

Ultra Super Roller Chain



TSUBAKI Chain Number	Pitch P	Roller Diameter R	Inner Width of Inner Link W	Plates		Pins			Minimum Tensile Strength kN{kgf}	Maximum Allowable Load kN{kgf}	Approximate Mass kg/m	
				Thickness T	Width H	Diameter D	L_1+L_2	L_1				L_2
RF100-US-1	31.75	19.05	19.05	4.8	30.1	9.54	46.3	21.8	24.5	149{15200}	39.2{4000}	5.07
RF120-US-1	38.10	22.23	25.40	5.6	36.2	11.11	57.5	26.95	30.55	213{21700}	53.9{5500}	7.22
RF140-US-1	44.45	25.40	25.40	6.4	42.2	12.71	62.0	28.9	33.1	273{27800}	68.4{6970}	9.24
RF160-US-1	50.80	28.58	31.75	7.1	48.2	14.29	72.4	33.95	38.45	341{34800}	90.0{9180}	12.19
RF200-US-1	63.50	39.68	38.10	9.5	60.3	19.85	91.0	42.9	48.1	580{59100}	122{12410}	20.47
RF240-US-1	76.20	47.63	47.63	12.7	72.4	23.81	117.1	54.8	62.3	853{87000}	168{17170}	31.69

Notes for use

- Select chains and sprockets using the Allowable Load Selection Method.
- Offset links are not available due to the super heavy-duty nature of transmission. Use an even number of links.
- Use drip lubrication, oil bath or splash lubrication, or forced pump lubrication.
- RS sprockets can be used, but cast iron sprockets cannot. Use sprockets made of S35C or higher carbon steel and harden the teeth of sprockets with low numbers of teeth.
- Check key strength, etc. Consider Tough Tooth sprockets (pgs. 17–18) with stronger hubs.
- Multi strand chains are not available. Consider a different Tsubaki Heavy Duty Chain if required.
- The specifications changed in October 2016 from "US" to "US-N." US-N has a smaller pin diameter than previous US. When replacing, replace the entire chain. This change does not affect the chain's minimum tensile strength or maximum allowable load.

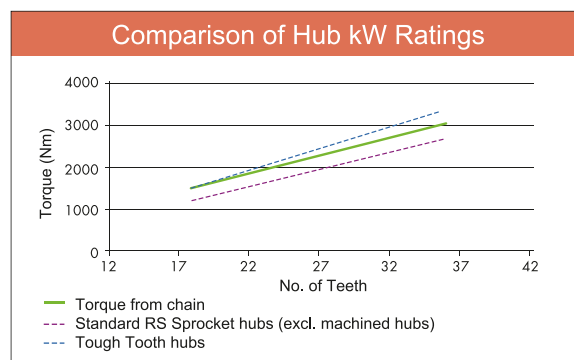
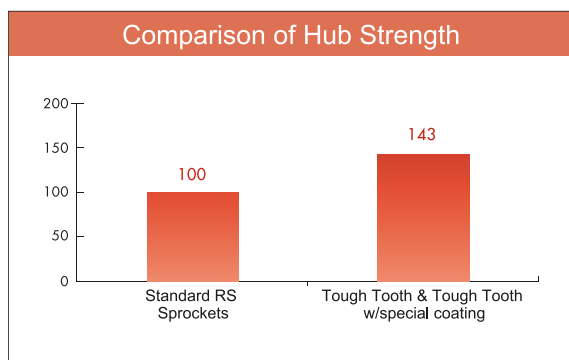
RS[®] Tough Tooth Sprocket

Tough Tooth sprockets have increased strength and durability to bring out the best in Tsubaki's new G8 Series Heavy Duty Drive Chains.



Features

- Teeth have ample strength to handle the increased strength of the G8 Series Heavy Duty Chain. The hub has been further strengthened as well.
- All models feature hardened teeth to give the sprocket more wear resistance.
- A special coating that even further increases tooth hardness is also available (optional)—ideal for harsh operating environments where users want to reduce chain and sprocket replacement frequency. The coating has a Vickers hardness over 800 to give the sprocket more wear resistance.

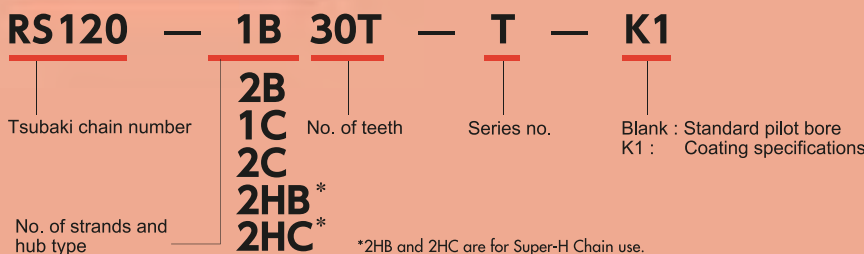


Note: 1. Torque is calculated from the keyway allowable surface pressure using a JIS parallel key at the maximum shaft hub diameter.
2. Comparison using RS80-SUP-H-1.

Specifications

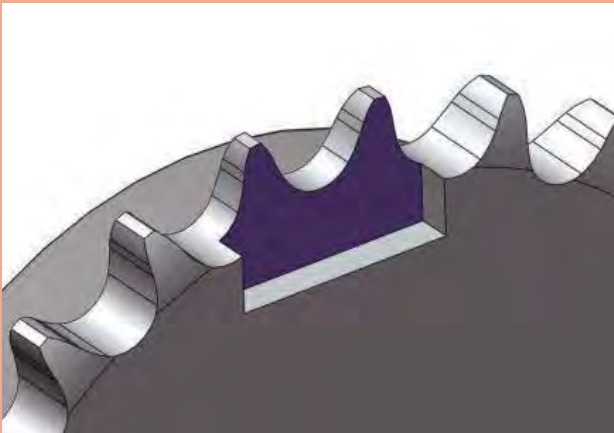
- B and C types standardized for single and double strand RS-HT Series RS60 and above.
- RS-HT Chains and Super-H Chains in multi strand configurations have a different tooth transverse pitch than RS Roller Chain sprockets.
- Other multi strand configurations, hub types, and numbers of teeth are made-to-order. Other shaft hub finishing also available.
- Both teeth and hubs use carbon steel for machine structural use.
- Made-to-order product.

Model Numbering Example



The tooth hardening used on Tsubaki Sprockets is overwhelmingly superior.

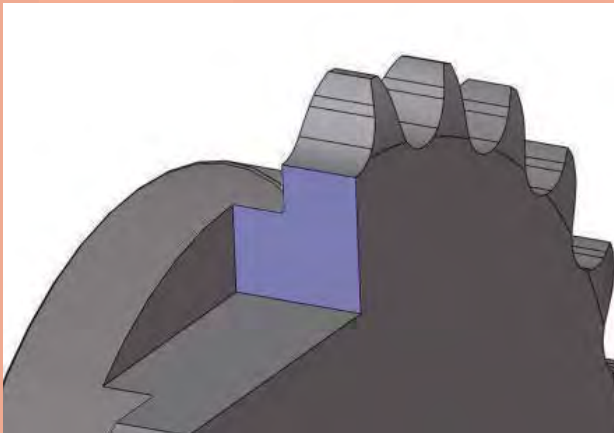
Comparison of Tooth Hardening



Cross-sectional observation of tooth hardening (darker area is the hardened layer)



Comparison of Tooth Hardness and Hardened Layer Depth

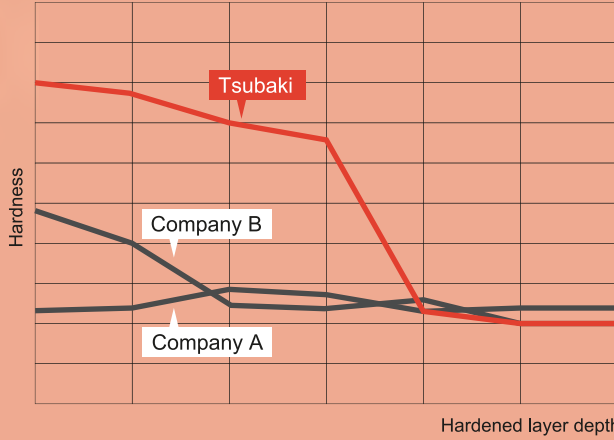
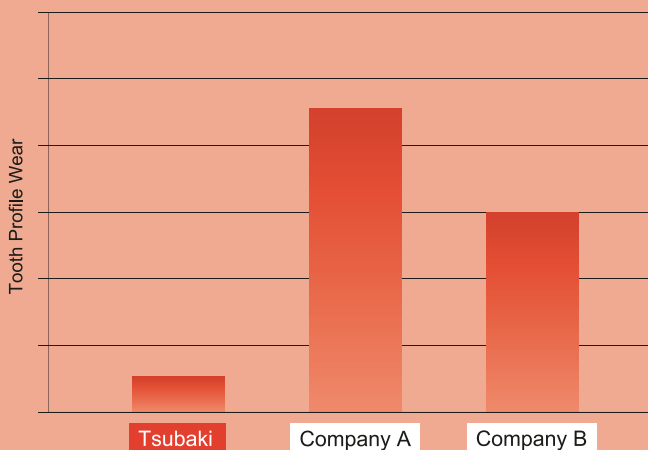


Cross-section observation of tooth hardened layer depth (darker area is the hardened layer)





Comparison of Tooth Profile Wear When Tested under Load

After 500 hours of testing RS40 sprockets for wear, the Tsubaki sprocket had the overwhelmingly superior wear performance.



RS® Tough Tooth Sprockets

Available Range

 RS Tough Tooth Sprockets
 Use standard RS Sprockets

 Made-to-order

● 1B (single strand B type)

No. of Teeth/Size	RS60	RS80	RS100	RS120	RS140	RS160	RS180	RS200	RS240
9T									
10T									
11T									
12T									
13T									
14T									
15T									
16T									
17T									
18T									
19T									
20T									
21T									
22T									
23T									
24T									
25T									
26T									
27T									
28T									
30T									
32T									
34T									
35T									
36T									
38T									
40T or more									

● 1C (single strand C type)

No. of Teeth/Size	RS60	RS80	RS100	RS120	RS140	RS160	RS180	RS200	RS240
9T									
10T									
11T									
12T									
13T									
14T									
15T									
16T									
17T									
18T									
19T									
20T									
21T									
22T									
23T									
24T									
25T									
26T									
27T									
28T									
30T									
32T									
34T									
35T									
36T									
38T									
40T or more									

Refer to the Tsubaki Drive Chains & Sprockets catalog for information on material and dimensions.

- Contact a Tsubaki representative for any inquiries.
- Sizes, nos. of teeth, and hub dimensions not shown above, as well as multi strand configurations, are made-to-order items.

● 2B (double strand B type)

No. of Teeth/Size	RS 60	RS 80	RS 100	RS 120	RS140~240
9T					
10T					
11T					
12T					
13T					
14T					
15T					
16T					
17T					
18T					
19T					
20T					
21T					
22T					
23T					
24T					
25T					
26T					
27T					
28T					
30T					
32T					
34T					
35T					
36T or more					

● 2C (double strand C type)

No. of Teeth/Size	RS 60	RS 80	RS 100	RS 120	RS140~240
9T					
10T					
11T					
12T					
13T					
14T					
15T					
16T					
17T					
18T					
19T					
20T					
21T					
22T					
23T					
24T					
25T					
26T					
27T					
28T					
30T					
32T					
34T					
35T					
36T or more					

Refer to the Tsubaki Drive Chains & Sprockets catalog for information on material and dimensions.

- The tooth transverse pitch differs with Super-H triple strand and above.
- Contact a Tsubaki representative for any inquiries.
- Sizes, nos. of teeth, and hub dimensions not shown above, as well as multi strand configurations, are made-to-order items.

Optional (made-to-order)

Special Coating Specifications

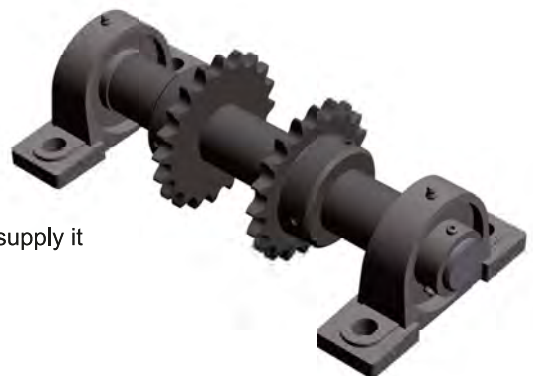
A special coating gives the teeth a hardness of over HV800 for better wear resistance. Effective in harsh operating environments where sprocket replacement frequency is high.

Shaft Bore Finishing Service

Optional shaft bore finishing service available.

Shaft Set Delivery

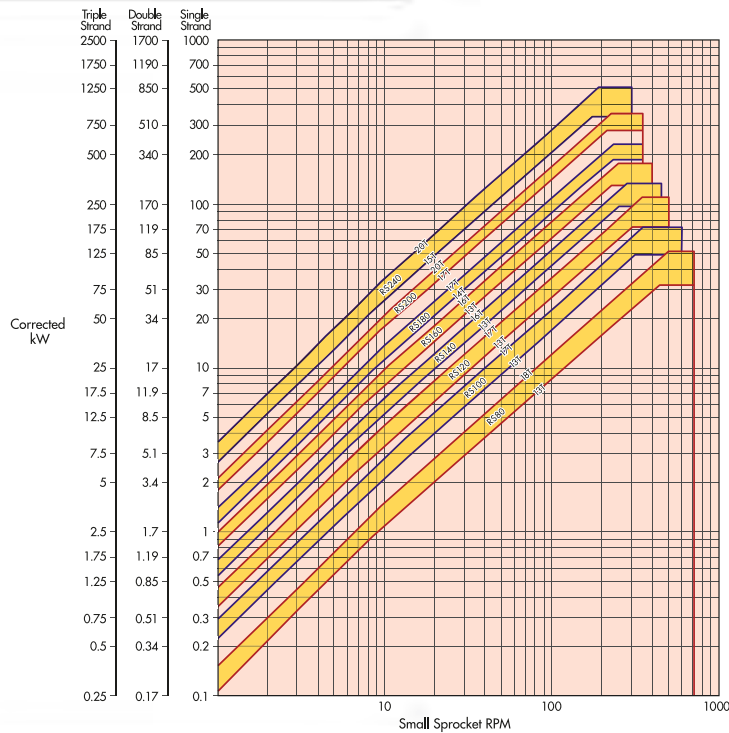
We can quote you for a shaft based on your drawings, manufacture it, and supply it together with your sprocket as a set. By also requesting inspection records, you can reduce inspection/assembly man-hours and cost.



Selection

When Heavy Duty Drive Chain is used in winding drives, then they can be selected using the General Selection Method or the Allowable Load Selection Method. Refer to the Tsubaki Drive Chains & Sprockets catalog for more information. See below for the easy selection graphs for RS-HT and Super Chains.

RS-SUP Easy Selection Graph



Understanding the Graph

1. (Ex.) For single strand chains with a corrected kW of 20kW

(1) For small sprockets at 100rpm

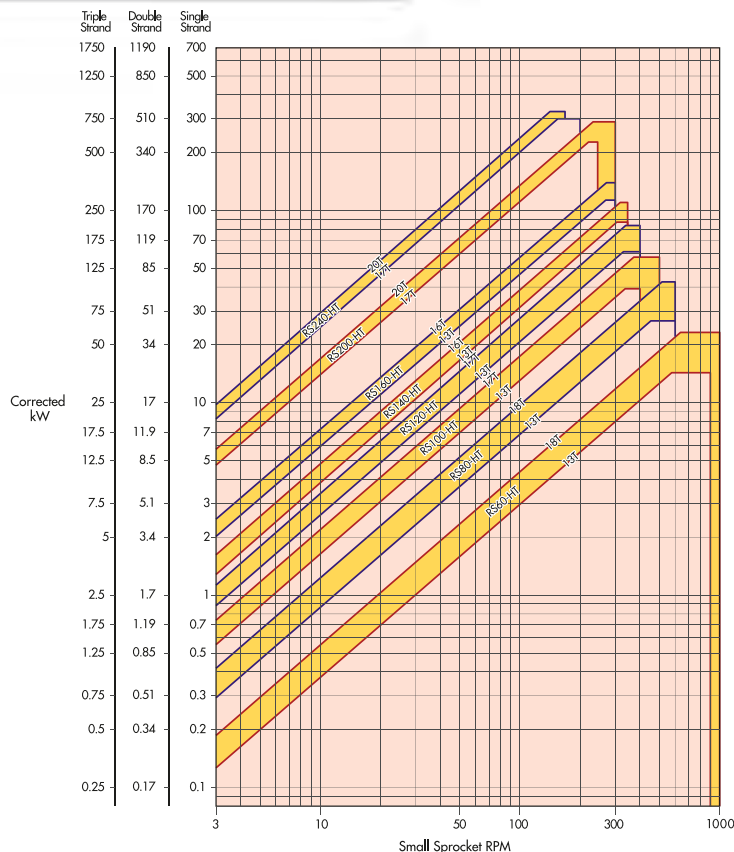
Looking at the corrected kW of 7kW (X-axis) and RPM (Y-axis), an RS100 chain has a sprocket smaller than 17T and larger than 13T, so from the intersection of those a 15T sprocket can be used.

(2) For small sprockets at 200rpm

Using the preceding example, the sprocket is smaller than RS80-18T and larger than RS80-13T. Because we performed a rough selection using this graph, as we did above, you will want to confirm the selection using the kilowatt ratings table for each chain number.

(3) Allow for a decrease in kilowatt ratings when using offset links as noted under each kilowatt ratings table.

RS-HT Easy Selection Graph



Ordering

Refer to the Tsubaki Drive Chains & Sprockets catalog for more information on ordering Heavy Duty Drive Chains and Sprockets.

For Your Safety When Using the Chain



Warning To avoid danger, observe the following rules.

- Do not use chain or chain accessories for any purpose other than their originally intended use.
- Never perform additional work on chain.
 - Do not anneal any chain parts.
 - Do not clean chain with acids or alkalis. These may cause cracking.
 - Never attempt to electroplate chain or chain parts. This may cause hydrogen embrittlement.
 - Do not weld chain. Heating effects will cause weakening and cracking.
 - When a torch is used to heat or cut chain, remove the links on each side and do not reuse them.
- When replacing a worn or damaged part, do not replace just the worn or damaged part. Replace all parts with new parts.
- If a material that causes hydrogen embrittlement (acid, strong alkali, battery fluid, etc.) comes in contact with the chain, immediately stop using the chain and replace it with new chain.
- When using chain in a lifting device, set up a safety barrier and do not allow anyone to go under the equipment.
- Always install safety equipment (safety covers, etc.) on chain and sprockets.
- Strictly observe the general guidelines listed in Section 1, Chapter 1, 2nd Edition of the Japanese Occupational Safety and Health Regulations as well as rules and regulations concerning occupational safety and health in your region/country.
- When installing, removing, inspecting, maintaining and oiling chain,
 - Perform the work as instructed in the manual, catalog or other documentation that was provided with the product.
 - Before starting work, turn off the power switch and take measures to prevent it from being turned on accidentally.
 - Secure the chain and parts to prevent them from moving freely.
 - Use a press tool or other special tools to separate or connect chain, and follow the correct procedures.
 - Remove and insert pins and rivets in the correct direction.
 - Wear clothing and protective gear (safety glasses, gloves, safety shoes, etc.) that are appropriate for the work.
 - Only experienced personnel should perform chain replacement.



Caution To prevent accidents, observe the following rules.

- Understand the structure and specifications of the chain that you are handling.
- Before installing chain, inspect it to make sure no damage occurred during delivery.
- Inspect and maintain chain and sprockets at regular intervals.
- Chain strength varies by manufacturer. Only Tsubaki products should be used when chain is selected using Tsubaki catalogs.
- Minimum tensile strength refers to the failure point when the corresponding load is applied to the chain once and does not refer to the allowable operational load.

Warranty

1. LIMITED WARRANTY

Products manufactured by Seller: (a) conform to the design and specifications, if any, expressly agreed to in writing by Seller; and (b) are free of defects in workmanship and materials at the time of shipment. The warranties set forth in the preceding sentence are exclusive of all other warranties, express or implied, and extend only to Buyer and to no other person. ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY EXCLUDED.

2. NON-RELIANCE

Buyer is not relying upon any advice, representations or warranties (except the warranties expressly set forth above) of Seller, or upon Seller's skill or judgment regarding the Seller's products.

Buyer is solely responsible for the design and specifications of the products, including without limitation, the determination of suitability for Buyer's application of the products.

3. CLAIMS

- (a) Any claim relating to quantity or type shall be made to Seller in writing within 7 days after receipt of the products; any such claim made thereafter shall be barred.
- (b) Any claim under the above-stated Limited Warranty shall be made to Seller in writing within three (3) months after receipt of the products; any such claim made thereafter shall be barred.
- (c) Seller's liability for breach of warranty or otherwise is limited to repair or replacement, at Seller's option, of non-conforming or defective products. Buyer waives all other remedies, including, but not limited to, all rights to

consequential, special or incidental damages, including, but not limited to, damages resulting from personal injury, death or damage to or loss of use of property.

- (d) Repair, alteration, neglect or misuse of the products shall void all applicable warranties.

4. INDEMNIFICATION

Buyer will indemnify, defend and hold Seller harmless from all loss, liability, damage and expense, including attorneys' fees, arising out of any claim (a) for infringement of any patent, trademark, copyright, misappropriation of trade secrets, unfair competition or similar charge by any products supplied by Seller in accordance with the design or specifications furnished by Buyer, or (b) arising out of or connected with the products or any items into which the products are incorporated, including, but not limited to, any claim for product liability (whether or not based on negligence or strict liability of Seller), breach of warranty, breach of contract or otherwise.

5. ENTIRE AGREEMENT

These terms and conditions constitute the entire agreement between Buyer and Seller and supersede any inconsistent terms and conditions, whether contained in Buyer's purchase order or otherwise, and whether made heretofore or hereafter.

No statement or writing subsequent to the date hereof which purports to modify or add to the terms and conditions hereof shall be binding unless consented to in writing, which makes specific reference hereto, and which has been signed by the party against which enforcement thereof is sought. Seller reserves the right to change these terms and conditions without prior notice.

Note: The logos, brand names, or product names in this catalog are trademarks or registered trademarks of Tsubakimoto Chain Co. in Japan and other countries.



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The Tsubaki Eco Link logo is used only on products that satisfy the standards for environmental friendliness set by the Tsubaki Group.